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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/789,221      | 02/27/2004  | Mark L. Rutherford   | 503447-605002       | 9125             |

7590

12/16/2004

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EXAMINER

HARTMAN JR, RONALD D

ART UNIT

PAPER NUMBER

2121

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/789,221

Applicant(s)

RUTHERFORD, MARK L.

Examiner

Ronald D Hartman Jr.

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/27/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Claims 1-13 are presented for examination.
2. Claims 1-6 were withdrawn via an Election to Group II (claims 7-13).

### ***Specification Objection***

3. As per claims 7 and 12, the applicant has not defined, within the context of the specification, what is meant by first control signal and therefore it has been interpreted to mean, in light of claim 12, to be the signal that is inputted to the second controller, that is, the signal that is provided by the summing junction, element 102 of Figures 3-4.

### ***Minor Informalities:***

4. The first line of the specification should be amended to reflect the patenting of Application 09/531,057, which is now U.S. Patent No. 6,721,608.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 7-13 are rejected under 35 U.S.C. 102(a) as being anticipated by the Article entitled, "Partitioned Error Control" (hereinafter: PEC article), described in Ind. Eng. Chem. Res, 1999, 38; pages 4113-4119. The article appears to have been published on 09/09/1999.

As per claims 7 and 12, the PEC article describes a method of controlling a controlled process in response to an input signal (e.g. Figure 2 element R) and a disturbance signal (e.g. Figure 2 element L), the method comprising:

- predicting a process output to create a predicted process output signal (e.g. utilizing the  $G_p^*$  to feedback a signal to the summer feeding the first and second controllers);
- generating an error signal based on the input signal and the predicted process output signal (e.g. utilizing the summer feeding the first and second controller to produce an error signal based on information fed back using the "Partitioning Loop");
- generating a first control signal based on a disturbance signal and the error signal (e.g. utilizing the second summer, from the left, of the lower Feedback Loop of Figure 2, to produce an input signal to be applied to  $G_{c2}$  using information based on the disturbance, the input signal and the error signal);
- processing the error signal and the first control signal to generate a process control signal to control the controlled process (e.g. utilizing the second and third summers from the left of the lower Feedback Loop so as to produce a process control signal to be inputted to the  $G_p$ , which is the controlled process); and
- wherein the error signal is generated independently of the first control signal and the process control signal (e.g. See article in conjunction with Figure 2).

As per claims 8 and 10, the PEC article contemplates the error signal being generated in one feedback loop and the first control signal and the process control signal being generated in another (e.g. Figure 2; Partitioning Loop and Feedback Loop).

As per claim 9, the PEC article teaches measuring the output of the controlled process and subtracting this output from the input signal (e.g. utilizing the Feedback Loop in conjunction with the first of 4 summers in the lower loop, or Feedback Loop).

As per claims 11 and 13, the PEC article teaches a first conditioned signal and second conditioned signal being added together to produce the process control signal (e.g. utilizing the third summer, from the left, of the lower Feedback Loop, to sum both the output from the first controller and the output from the second controller to produce a signal which is used to control the process).

**Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald D Hartman Jr. whose telephone number is (571) 272 - 3684. The examiner can normally be reached on Mon. - Fri., 10:00 am - 8:00 pm EST.

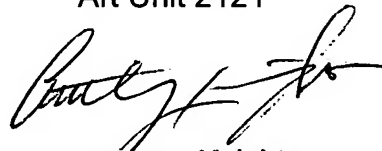
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached at (571) 272 - 3687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ronald D Hartman Jr.

Examiner

Art Unit 2121

A handwritten signature in black ink, appearing to read 'Anthony Knight', is written over the printed name.

Anthony Knight  
Supervisory Patent Examiner  
Group 3600